

# *CLASS COPY DO NOT REMOVE OR WRITE ON*

## **Digital Periodic Table and Trends**

### **Activity:**

1. Go to <http://www.lynchburg.net/hhs/chemistry/trends/> and explore some on-line periodic tables; click on each of the links in the left frame.
2. Use the Cool Periodic Table link. For each of the first three elements in rows 2, 3, and 4 (Li, Be, B; Na, Mg, Al; then K, Ca, Ga) find the Atomic Radius (click on the element symbol on the periodic table).
  - a. What appears to be the trend in atomic radius as you move from left to right in a row?
  - b. What appears to be the trend in atomic radius as you move down a column?
  - c. Predict the change in atomic radius of the next elements in a row (C, Si), then check those properties.
  - d. Do they match your predictions?
  - e. Check the atomic radius of the next elements in the series (N,P). How do they fit the predicted pattern?
  - f. Is the pattern of atomic radius absolute or general (always true or generally true)?
3. Repeat the same steps and questions, but look at the property of first ionization energy and then repeat again for electronegativity.
4. Consider all three of the properties that you have examined.
  - a. State the general trend for each property if you move from left to right on the Periodic Table. Now, state the general trend from top to bottom.
  - b. How do these properties show periodicity (periodic trends)?
5. Use the links given below to examine the same three properties graphically.
6. View the line graph of atomic radius.
  - a. What do the different colors show?
  - b. Can you see a pattern in the second period that is repeated in the third period?
  - c. How does this graph agree with your observations of atomic radius made earlier?
  - d. Why do the fourth and fifth periods have more dots and different patterns?
7. Find the same type of graph for 1st ionization energy (enthalpy) and electronegativity. Answer the same questions for these graphs as you did for the atomic radii graph.
8. Use the color-coded tables, atomic radius, 1st ionization energy and electronegativity, to answer the questions below.
  - a. How does this show periodic trends of the selected property?
  - b. Which method did you find most informative?
  - c. Which method was easiest to see the general pattern and not get confused by exceptions in that pattern?

*CLASS COPY DO NOT REMOVE OR WRITE ON*